

Patent
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:	:
STEEGHS, H., et al.	: Docket No.: ASC 5695 US2
	:
Serial No. (Parent): 08/032,525	: Group Art Unit (Parent): 1742
	:
Filing Date: Concurrently herewith	: Examiner (Parent): M. Andrews
	:
Title: PROCESS FOR AGGLOMERATING	:
PARTICULATE MATERIAL AND PRODUCTS	:
MADE FROM SUCH PROCESSES	:

BOX AF
Assistant Commissioner of Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Preliminary to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Page 1, please change lines 1 and 2 to read as follows:

- - PROCESS FOR AGGLOMERATING PARTICULATE
MATERIAL AND PRODUCTS MADE FROM SUCH PROCESSES

This application is a continuation of application Serial No. 08/032,525, filed March 15, 1993, now on appeal, which is a continuation of application Serial No. 07/788,971, filed November 7, 1991, now abandoned .- -

IN THE CLAIMS:

Please cancel claims 2, 5, 6, 10, 13, 14, 18, 23 and 27-36 without prejudice and amend claims 1, 3, 8, 9, 11, 17, 19, 20, 21, 22 and 24 as follows:

1. (Amended) A process of agglomerating metallic ore, said process comprising commingling said metallic ore with a moistening effective amount of water, and a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture and forming said mixture into agglomerates.

3. (Amended) The process of Claim 1 wherein said metallic ore is iron.

8. (Amended) A process of agglomerating iron ore, said process comprising commingling said iron ore with a moistening effective amount of water, and a binder consisting of a binding effective amount of guar and a binding effective amount of citric acid to produce a mixture and forming said mixture into agglomerates.

9. (Amended) Pellets prepared in accordance with the process of Claim 1.

11. (Amended) The pellets of claim 9 wherein said metallic ore is iron.

17. (Amended) A process of agglomerating metallic ore, said process comprising commingling said metallic ore with a moistening effective amount of water, and a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives and mixtures thereof and a binding effective amount of the salt of a weak acid, to produce an agglomerating mixture and forming said mixture into agglomerates.

19. (Amended) The process of Claim 17 wherein said metallic ore is iron ore.
20. (Amended) The process of Claim 17 wherein said salt of a weak acid is selected from the group consisting of salts of citric acid, salts of tartaric acid, salts of malic acid, salts of fumaric acid, salts of lactic acid and mixtures thereof.
21. (Amended) The process of Claim 17 wherein said polymer and said salt of a weak acid together are about 0.01 to about 1.0 wt.% of said agglomerating mixture.
22. (Amended) Pellets comprised of metallic ore, and a binder consisting of a binding effective amount of polymer selected from the group consisting of guar, guar derivatives, starch, modified starch, starch derivatives and mixtures thereof and a binding effective amount of the salt of a weak acid.
24. (Amended) The pellets of claim 22 wherein said metallic ore is iron ore.

Please add the following new claims:

- -37. A process of agglomerating metallic ore in the presence of water which comprises mixing said metallic ore with a binder consisting of a binding effective amount of at least one polymer selected from the group consisting of starch, starch derivatives, modified starch and mixtures thereof, and a binding effective

amount of the salt of a weak acid to produce a mixture, and forming said mixture into agglomerates.

38. The process of Claim 37 wherein the metallic ore is iron ore, and said salt of a weak acid is selected from the group consisting of salts of citric acid, salts of malic acid, salts of tartaric acid and mixtures thereof.

39. A process of agglomerating metallic ore in the presence of water which comprises mixing said ore with a binder consisting of a binding effective amount of at least one polymer selected from the group consisting of starch, modified starch, starch derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture, and forming said mixture into agglomerates.

40. A binder composition useful for the agglomeration of metal containing ores consisting of a binding effective amount of at least one polymer selected from the group consisting of guar, guar derivatives, and mixtures thereof and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof.

41. The process of Claim 1 wherein said guar derivative is selected from the group consisting of carboxymethyl guar, hydroxypropyl guar and mixtures thereof.

42. Pellets prepared in accordance with the process of Claim 17.

43. The process of Claim 17 wherein said guar derivatives are selected from the group consisting of carboxymethyl guar, hydroxypropyl guar and mixtures thereof.

44. The process of Claim 37 wherein said polymer and said salt of a weak acid together are about 0.01 to about 1.0 wt% of the mixture.

45. The process of Claim 39 wherein said polymer and said weak acid are about 0.01 to about 1.0 wt% of the mixture.

46. A binder composition useful for the agglomeration of metal containing ores consisting of a binding effective amount of at least one polymer selected from the group consisting of guar, guar derivatives, and mixtures thereof and a binding effective amount of a salt of a weak acid.

47. A process of agglomerating metallic ore, said process comprising commingling said metallic ore with a moistening effective amount of water, and adding to the ore a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture and forming said mixture into agglomerates.- -

Remarks

This Preliminary Amendment is submitted to amend the specification and claims. It amends claims 1, 3, 8, 9, 11, 17, 19, 20, 21, 22 and 24, cancels claims 2, 5, 6, 10, 13, 14, 18, 23 and 27-36 without prejudice and adds new claims 37-47. Presently, claims 1, 3, 4, 7-9, 11, 12, 15-17, 19-22, 24-26 and 37-47 are pending. A Marked Version of the amendments is appended to the end of this amendment.

Early and favorable consideration of the claims is respectfully requested.

Respectfully submitted,



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Encl: Marked Version

MARKED VERSION

IN THE SPECIFICATION:

Page 1, after line 2, please insert - - This application is a continuation of application Serial No. 08/032,525, filed March 15, 1993, now on appeal, which is a continuation of application Serial No. 07/788,971, filed November 7, 1991, now abandoned . - -

IN THE CLAIMS:

Please cancel claims 2, 5, 6, 10, 13, 14, 18, 23 and 27-36 without prejudice and amend claims 1, 3, 8, 9, 11, 17, 19, 20, 21, 22 and 24 as follows:

1. (Amended) A process of agglomerating [particulate material] metallic ore, said process comprising commingling said [particulate material] metallic ore with a moistening effective amount of water, and a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture and forming said mixture into agglomerates.
3. (Amended) The process of Claim [2] 1 wherein said metallic ore is iron ore.
8. (Amended) [The process of Claim 1 wherein] A process of agglomerating iron ore, said process comprising commingling said iron ore with a moistening effective amount of water, and a binder consisting of a binding effective amount of guar and a binding effective amount of citric acid to produce a mixture and forming said mixture into

4 agglomerates [the particulate material is comprised of iron ore, the polymer is comprised of guar and the weak acid is comprised of citric acid].

9. (Amended) Pellets prepared in accordance with the process of Claim 1 [comprised of particulate material, a binding effective amount of polymer and a binding effective amount of weak acid].

11. (Amended) The pellets of claim [10] 9 wherein said metallic ore is iron ore.

17. (Amended) A process of agglomerating [particulate material] metallic ore, said process comprising commingling said [particulate material] metallic ore with [(1)] a moistening effective amount of water, [(2)] and a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives[, starch, modified starch, starch derivatives] and mixtures thereof, and [(3)] a binding effective amount of the salt of a weak acid₁ to produce [an agglomerating] a mixture and forming said mixture into agglomerates.

19. (Amended) The process of Claim [18] 17 wherein said metallic ore is iron ore.

20. (Amended) The process of Claim 17 wherein said salt of a weak acid is selected from the group consisting of salts of citric acid, salts of tartaric acid, salts of malic acid, salts of fumaric acid, salts of lactic acid and mixtures thereof.

21. (Amended) The process of Claim 17 wherein said polymer and said salt of a weak acid together are about 0.01 to about 1.0 wt.% of said [agglomerating] mixture.

22. (Amended) Pellets comprised of [particulate material] metallic ore, and a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives, starch, modified starch, starch derivatives and mixtures thereof and a binding effective amount of the salt of a weak acid.

24. (Amended) The pellets of claim [23] 22 wherein said [particulate material] metallic ore is iron ore.

Please add the following new claims:

- 37. A process of agglomerating metallic ore in the presence of water which comprises mixing said metallic ore with a binder consisting of a binding effective amount of at least one polymer selected from the group consisting of starch, starch derivatives, modified starch and mixtures thereof, and a binding effective amount of the salt of a weak acid to produce a mixture, and forming said mixture into agglomerates.

38. The process of Claim 37 wherein the metallic ore is iron ore, and said salt of a weak acid is selected from the group consisting of salts of citric acid, salts of malic acid, salts of tartaric acid and mixtures thereof.

39. A process of agglomerating metallic ore in the presence of water which comprises mixing said ore with a binder consisting of a binding effective amount of at least one polymer selected from the group consisting of starch, modified starch, starch derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture, and forming said mixture into agglomerates.

40. A binder composition useful for the agglomeration of metal containing ores consisting of a binding effective amount of at least one polymer selected from the group consisting of guar, guar derivatives, and mixtures thereof and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof.

41. The process of Claim 1 wherein said guar derivative is selected from the group consisting of carboxymethyl guar, hydroxypropyl guar and mixtures thereof.

42. Pellets prepared in accordance with the process of Claim 17.

43. The process of Claim 17 wherein said guar derivatives are selected from the group consisting of carboxymethyl guar, hydroxypropyl guar and mixtures thereof.

44. The process of Claim 37 wherein said polymer and said salt of a weak acid together are about 0.01 to about 1.0 wt% of the mixture.

45. The process of Claim 39 wherein said polymer and said weak acid are about 0.01 to about 1.0 wt% of the mixture.

46. A binder composition useful for the agglomeration of metal containing ores consisting of a binding effective amount of at least one polymer selected from the group consisting of guar, guar derivatives, and mixtures thereof and a binding effective amount of a salt of a weak acid.

47. A process of agglomerating metallic ore, said process comprising commingling said metallic ore with a moistening effective amount of water, and adding to the ore a binder consisting of a binding effective amount of a polymer selected from the group consisting of guar, guar derivatives and mixtures thereof, and a binding effective amount of a weak acid selected from the group consisting of citric acid, malic acid, tartaric acid and mixtures thereof to produce a mixture and forming said mixture into agglomerates. - -